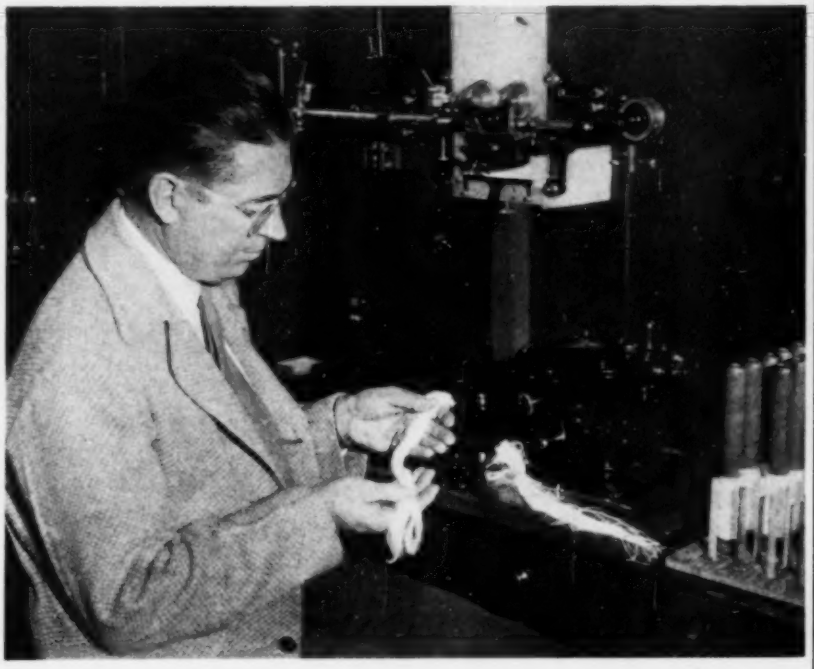
THE CHEMIST

SEPTEMBER 1949 VOLUME XXVI No. 9



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DR. J. DAVID REID

Chairman, Louisiana Chapter

(See page 339)

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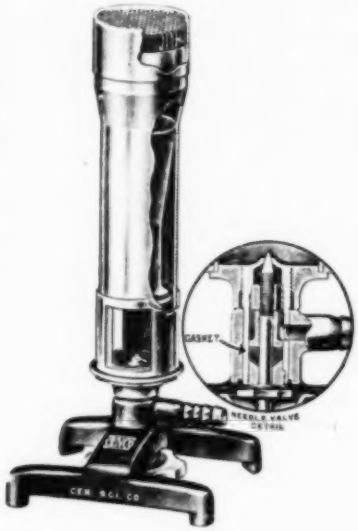

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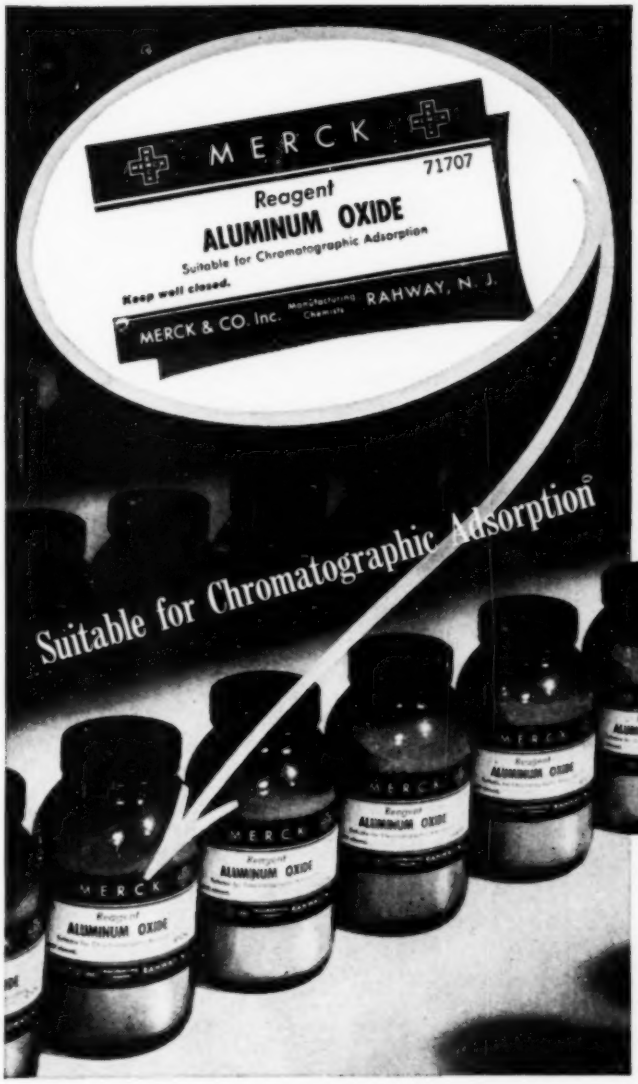

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Other Material.

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Professional Services ..... **358 and inside back cover**

COVER PICTURE

Dr. J. David Reid, F.A.I.C., chairman of the Louisiana Chapter, A.I.C, and chemist-in-charge, Chemical Properties Section, Cotton Fiber Research Division, Southern Regional Research Laboratory, New Orleans, La., is shown examining a bundle of fibers spun from solutions of Carboxymethylcellulose, using a metal salt as the precipitant. These metal carboxymethylcelluose fibers, soluble in weak alkalies, may be used as scaffolding fibers to produce novelty or light fabrics from wool or cotton materials. The product is similar to the alginate fibers now made in England. Because of this, when Dr. Reid described it at a recent technical meeting, the press publicized it under the heading, "Soluble Fiber Made from Synthetic Seaweed," and some papers even entitled the article, " Fiber from Synthetic Weeds!"

Dr. Reid was born in 1909 at Portland, Oregon. He received the B.S. degree from Washington State College; the A.M. Degree from George Washington University, and the Ph.D. degree from American University. In 1930, he began his career as a chemist in the Color and Farm Waste Division of the Bureau of Chemistry and Soils, Washington, D.C. From 1936 to 1940 he did research on cellulose and lignin at the Agricultural By-Products Laboratory, Ames, Iowa. He joined the Southern Regional Research Laboratory in 1940.

The Louisiana Chapter plans to keep its meetings on the informal and social side, concerning itself with professional matters rather than with the scientific-talk type of meeting.

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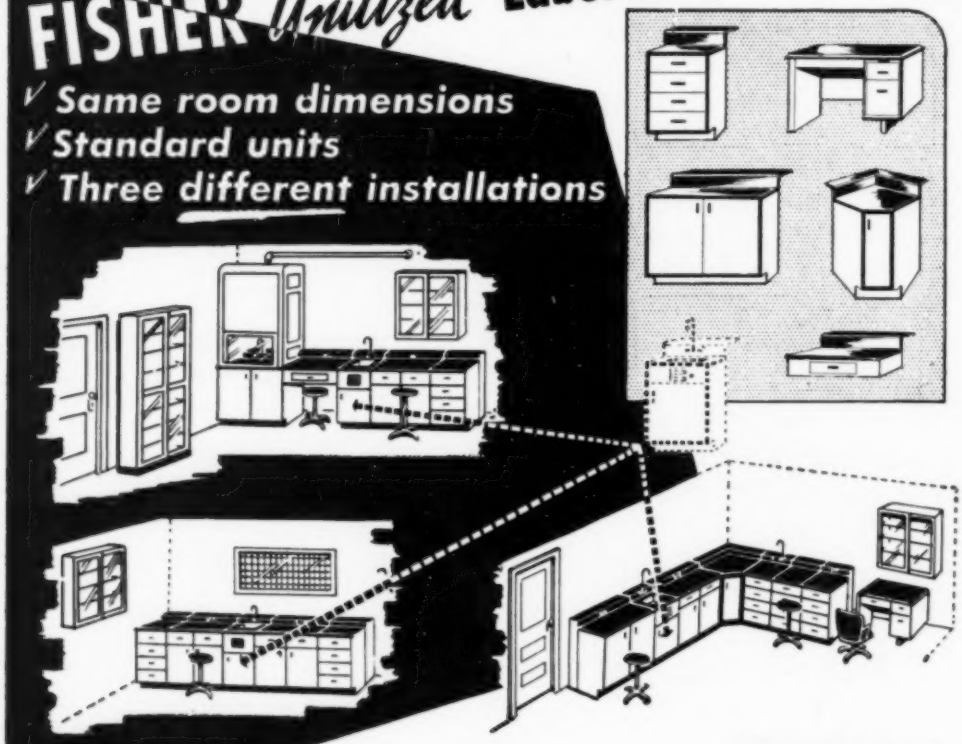

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EDITORIAL

In Defense of a Liberal Education

Karl M. Herstein

Councilor from the New York Chapter

(One of a series of editorials being prepared by members of the Council of THE AMERICAN INSTITUTE OF CHEMISTS)

"You are old Father William," the young man said,
"And you hair has become very white;
And yet you incessantly stand on your head—
Do you think, at your age, it is right?"
"In my youth, "Father William replied to his son,
"I feared it might injure the brain;
But, now that I'm perfectly sure I have none,
Why, I do it again and again."
—Lewis Carroll

WHEREVER one opens a professional journal nowadays, one finds a lament over the inability of chemists to write good English. Justified as this complaint undoubtedly is, it still represents a lack of full perspective. Let us consider that the time spent in training of the mind between kindergarten and major devotion to earning a living may be aimed at two different objectives. One of these is the acquisition of the skills, physical and mental, which everyone needs for living in our society. Elementary arithmetic, a vocabulary of about a thousand words, and the ability to read street signs are the most basic of these. With high school, college and university, more subjects are added to these and the student becomes equipped with more techniques so that he can get along with greater facility. By extraordinary good fortune he may, somewhere along the line meet a teacher with a love for learning which he transmits to a few students, but usually the student will have his doctorate with never a peek at the intellectual wealth of the world we have inherited.

On the other hand, there can be an education aimed at the appreciation of this wealth. Its object is to stimulate in the student an endless curiosity to know, to understand, and eventually to contribute. It is a necessary incident of this type of education that skills of getting along are learned. Chaucer, Gibbon, and James Branch Cabell offer little to a one-thousand word vocabulary. The same awakened mind that wants to know about literature and art and history will make a better chemist. The same curiosity will seek scientific discoveries or process improvements that seeks knowledge elsewhere.

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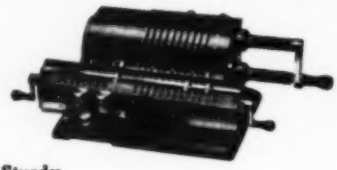

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Many of our elder statesmen, notably Drs. Crossley and Egloff, have repeatedly expressed the ideal we have stated here. It needs more than this, however, to bring it to pass. We must all, and especially our teacher members, ever bear in mind that we are educating people, not teaching subjects; that curricula must be designed to this end and that only the peers of Father William need fear that mental over-exertion will result in bodily harm.

About our Editorial Writer

Karl M. Herstein, F.A.I.C., who contributes our editorial this month, is a consulting chemist in New York, N.Y. He has been a member of the A.I.C. almost since its origin and is well-known to all of the members of the New York Chapter as a consistent attendant at meetings and an ever-willing worker for the INSTITUTE.

At various times, he has been a member of the INSTITUTE's Committee on Qualifications, secretary of the New York Chapter, and councilor from the New York Chapter.

During the past few years, as chairman of the New York Chapter's Committee on Student Relations, he has addressed many meetings of college students and chemistry faculties on the same general topic as his present editorial, the subject of which lies very close to his heart.

The Role of Universities and Industry-Financed Research

Ovid W. Eshbach

(Presented at the A.I.C. Annual Meeting, May 7, 1949)

Dean, Northwestern University Technological Institute

IN Vannevar Bush's "Science—the Endless Frontier," part of the answer to this topic of discussion may be found in his reply to the late President Roosevelt's question, "Can an effective program be proposed for discovering and developing scientific talent in American youth so that the continuing future of scientific investigation in this country may be assured on a level comparable with what was done during the War?" These two words, discovery and development, are the essential ones which identify the role of universities and industry. We may not agree on the extent to which basic investigations characterized war research, or in the standards implied, or even on the meaning of the word, "basic". What is called basic in engineering may not be considered so in the primary physical sciences traditionally called physics and chemistry. As a foundation for this discussion, let us consider that any new idea which is a key to further progress in understanding or physical achievement is basic. Such ideas emanate from the meditation of able thinkers who have leisure to think and the time and facilities for testing their thinking.

This does not require or imply that all research should be lacking in direction or in objectivity. However, the desirability of encouraging such freedom in research seems evident. While there is an economic limit in the extent to which such research can be supported, human limitations in availability of talent clearly make the search for it the first step in its stimulation. A competent and successful research worker is endowed with a curiosity about things and with a high degree of intelligence and knowledge which interact to find reasons and relationships among phenomena. It is the role of the university to develop such scientific talent. Finding those whose talents should be developed is not as difficult, however as finding the staff to develop the talent, although the two are related in that the one becomes the supply for the other.

Aptitude in science is perhaps one of the greatest assets of a nation. Insofar as it remains hidden it is like an undiscovered body of ore, value-

less so long as it is not processed. It is a latent asset which undoubtedly belongs to the public, the accrued value of which should be for the public benefit. In the long run industry will be a beneficiary, because it is the agency through which science and research become economically fruitful. If these generalities are admissable as axiomatic truths, there is an opportunity, rather than obligation, for industry and education to cooperate. Let us, therefore, explore these things which universities and industry can and may do toward these ends.

It is appropriate to acknowledge in advance the debt that education owes to organized industry and to private entrepreneurs. It is common knowledge that many of our institutions owe their origins to private philanthropists, and that their endowments and numerous scholarships and fellowships have a similar origin. The Coffin fellowships, the Westinghouse Talent Search, and the DuPont fellowships are examples of the value of these kinds of cooperation. If we wish to mention a few such institutions and their benefactors, we think of the names of Eastman, Yale, Cornell, Johns Hopkins, Packard, Walter P. Murphy and Stanford, all people who gave their private fortunes to establish institutions of learning in order to train students and to advance knowledge.

The Selection of Students

For the purpose of this discussion let us focus attention on three functions or methods by which universities and industry may cooperate in stimulating basic research. The first is discovery, the second development, and the third creation of an atmosphere which makes development possible. In this country we have an entirely different philosophy and viewpoint of education from that in foreign countries. It will not change suddenly and perhaps it should not change. Some have said that in past history a few foreign countries have made greater advances in the development of outstanding basic scientists than has the United States. We in America have come to believe that any boy who is talented and capable of making a satisfactory record should have an education. Most parents help their sons to capitalize on this belief. The selection of students is largely a matter of choosing those who will be successful in college. In that selection there is rarely the consciousness that a student will be of the type to lead in research. In general, we choose average good students, but, in addition, scholarship students are selected, either because the institutions want to be sure that their group is leavened with outstanding intelligence, or because some are conscious that from this limited group (in which there may be some failures) the future leaders of the universities and our

industries will come. Anything which can be done to discover the outstanding man and to help him is a function of the university, of industry, and of a philanthropically-minded public, and public universities are dependent upon the conscience of the public in its appropriations through State legislatures.

Selecting outstanding talent at an early age is not always practical. There comes to mind an experience with three boys from the same institution, one of our best high schools, the first two of whom won the science prizes and the third one who did not. The first boy enrolled at another institution to study physics before he came to us. He had a difficult time learning mathematics, and mainly for this reason he became discouraged. He never did graduate. The second man came directly to us, and although it was conceded that he might be a genius in some respects, we could not see much of a successful future for him. After he had been with us for a short time it became evident that he had a mind like a garbage can; he collected all kinds of ideas, read all kinds of literature, and dumped everything into one repository, unrelated. He finally managed to graduate but I doubt that you will ever hear of him. The third man was not a science prize winner and was not the top man in his class. One day in a rather timid attitude he came into my office, after having applied for admission, and asked this simple question: "Would you give me permission to take the examination in mathematics so that I might start where I think I am capable of starting?" After I had discussed the matter with him for a few minutes, I decided that he should have that permission. Before the end of his first term he had passed all of the undergraduate mathematics courses, analytic geometry, differential and integral calculus, series and differential equations. We watched him, shaped his career, subsidized him, and urged him to attend another institution because we felt that he should have a diversified education. He has a Master's degree and is now attending another institution, under subsidization there, also.

The Inquiring Attitude

What is involved in this selection? I think there is a viewpoint of which all teachers are not always conscious. We must realize when we are talking about science that the average parents do not know specifically what we are talking about. Most young boys think of science in terms of things one can physically see and measure. These are largely the things with which engineers are concerned: voltages and currents, pressures, velocities; the things one needs to understand to make the world go around and our industries profitable. Then there is the microscopic field of science which also should be appreci-

ated. Very few ever get into the submicroscopic field, where, by postulation and indirection, they try to determine whether their postulations are correct. This inquiring attitude cannot be found in a young boy. It can be detected at various stages if, in the course of his education and training, his studies are so arranged as never to discourage him but always to provide the opportunity for speculative thinking. This is a problem of motivation, and it cannot be treated in a mass fashion. Some member of the staff, having discovered such an individual, must take an interest in his life and see to it that, by personal conferences and contacts, he is stimulated to advance. While difficult and time-consuming, this is the heart of discovery of real talent. Unfortunately, when we have found such people in the past it has been very difficult to do much to develop them.

In the last quarter-century, however, our facilities in universities have increased tremendously. The environments have changed and are still changing. The atmosphere in which a student with creative imagination may develop is far better today than it ever was, and it will be still better. But this is not sufficient. Once the proper atmosphere is created it must be supported. It has to be supported by endowed professorships, by fellowships and scholarships, by buildings with sufficient funds to maintain them, and by research, whether sponsored or not.

Industry's Requirements

It is inevitable that someone has to pay for research. The fact that it may be paid for by industry should not brand it as undesirable. It is the attitude of mind and the atmosphere in which work is done that determines whether research is used effectively in the development of talent, or whether it is being fostered just for advertising purposes. Almost without exception industry must operate to make a profit. To boards of directors this may appear inconsistent with the support of basic research, for such research may or may not yield profits, and if it does, the profits are usually deferred. Most industrial organizations are not likely to support or to participate in a great amount of basic research of the kind which we are discussing. Industry thus confines itself largely to development, the process of utilizing the findings of basic research. It is therefore an important function of the university to carry on the task of expanding basic knowledge from which industry later may benefit.

In industry, where the research group must have a versatility of experience as well as outsanding ability, it is probably inadvisable for a company to establish a research program of its own unless it is prepared to spend at least one-hundred-thousand dollars a year on such an effort. This

assumes not only a versatile but also a self-sustaining group. It is possible, however, for an engineering school to operate a similar organization at a lower cost, since within the university there is a great diversification of many specialists, all of whom need not be employed continuously on research. In order to have such a large-scale sponsored research program operating smoothly and economically, there must be within the team a rather high percentage of full-time employees who do little or no teaching in the undergraduate program and relatively little, if any, at the graduate level. However, when either undergraduate or graduate students work with such full-time research men, education of an informal nature takes place. The full-time staff is necessary to give coordination and speed to the research program. If many professional persons are employed, say twenty or more, it is almost a necessity that there be a full-time technical or assistant director, even though he may be responsible to the university through a department chairman or through a director of research. Some of the section heads in the research project must be full-time men, others may be members of the teaching staff. The selection of section heads to serve in a research group depends primarily on the natural interest and abilities of the individuals concerned. Full-time personnel of professional classification should be of as high a calibre as it is possible to secure, and their professional abilities should be comparable to those of the teaching staff. In addition to these full-time employees there must be machine draftsmen, trained shopmen, computers, and a competent clerial force. Definite and clearly understood policies are needed in relation to all of these people.

The Graduate Program

It is fair to say that the scientific professions have a mandate to develop a kind of graduate program uninhibited by any past academic traditions, practices, or degrees. The real objectives of graduate work are to enable the student to obtain a deeper and more comprehensive knowledge of basic physical science and to develop a method in the use of this science which gives him greater ability and competence in the attack upon new problems. These objectives may be contrary to the popular conception of developing high specialization, or even just specialization. It may be described by saying that its aim is to build foundations deeper and stronger and more massive, rather than to erect a high and lacy tower with a sharp and isolated spire.

The place of research in a graduate program, and particularly its administration, is a source of some confusion. This comes about whenever research is considered to be the sole method and purpose of pursuing graduate work. Research in a gradu-

ate program is simply an extended problem for the student, which gives him the opportunity through an independent attack upon an engineering or scientific problem to extend the use of fundamental tools. It is in a sense a trial run where academic procedures are concerned. The function of research in a graduate program is to test the student's grasp of fundamentals, his powers of organization for an independent attack on a problem, and his accomplishment of such an attack. It is an educational device to test professional development. This is particularly so at the Master's level. At the Doctor's level the quality and independence is stressed by requiring that the result of his research be a contribution to knowledge.

To support graduate programs requires money. Generally, students cannot pay their way, nor can their parents supply the funds. Educational institutions do not have the money. From a practical standpoint, therefore, we must expect increased cooperation between education and industry, and education and government. All research is paid for by somebody. I believe that we are undergoing an experience in this postwar period which will ultimately clarify this whole position, protect the fundamental purposes of education, and give service to industry and government. Scientific education in this country always has been wedded to our American industry, and it always shall be.

SCI Elections

Dr. Gustavus J. Esselen, F.A.I.C., of Esselen Research Corporation, Boston, is the new chairman of the American Section of the Society of Chemical Industry for 1949-1950. Dr. R. C. Swain, F.A.I.C., was elected vice chairman, and Dr. W. J. Baeza, F.A.I.C., honorary treasurer. A.I.C. members elected to the executive committee are: Dr. L. W. Bass, Dr. C. L. Brown, Dr. W. S. Calcott, L. H. Flett, L. B. Hitchcock, H. B. McClure, Dr. F. Othmer, Dr. Emil Ott, and Raymond Stevens.

IRI Elects

The Industrial Research Institute, Inc., announced the election of the following officers: President, J. H. Schaefer, vice president, Ethyl Corporation; Vice President, C. F. Rassweiler, F.A.I.C., vice president, Johns-Manville Corporation; Secretary-treasurer (re-elected), C. G. Worthington.

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Governmental Impingements Upon Industrial Research

John W. Anderson

President, National Patent Council

(Presented before the A.I.C. Annual Meeting, Chicago, Ill. May 7, 1949)

TIME permits no more than to deal directly with the substance of so broad a subject as that assigned to me, with little recourse to the wealth of supporting documentation.

May I ask you to keep in mind our belief that governmental impingements upon industrial research are part of a comprehensive program to which the power planners of our Nation are consecrated? Witness their relentless efforts to bring not only the creative, but all other functions of our citizenry within their professedly beneficent control.

Perhaps the most advanced example of power planning—apparently intended as the master stroke by which the planners would give conclusive effect to all their encroachments upon the normal creative functions of industry—is the mechanism set up within the four corners of pending National Science Foundation legislation.

I had occasion to discuss the current National Science Foundation bill, H.R. 12 and S. 247, at meeting of the members of Dayton Patent Law Association on March 11th. On April 26th the House Subcommittee of the Committee on Interstate and Foreign Commerce, in charge of these bills, with customary Congressional courtesy listened patiently for an hour and a half to my testimony adverse to the bills. Copies of my Dayton address and of the transcript of testimony before the Committee will be sent promptly upon any request directed to me in care of National Patent Council, Gary, Indiana.

Each presents much documentation supporting our belief that

> "Only the economic dynamics of a nation condition it for survival against inevitable competitions. The vision of 'one world,' in which competition would remain subdued and man no longer would covet the greener pastures of his neighbors, or his neighbor's greater pools of oil, ignores abundant proof that nature's impulsions toward perfection of its organisms forces competitions. It denies the inevitable tragic fate of those who are persuaded to divest themselves of capacity for such competition.
>
> "The promise of economic security under planning in a static economy is but a political lure employed rashly as an expedient for the perpetuation of power of a regime of opportunists—or employed deliberately to induce a nation to suicide.
>
> "No hedge against future poverty of

the citizens of any nation can hold fast against an unarrested decline in individual incentive to create and produce for personal profit."

Incentive Injured

Before any attempt to catalogue briefly some of the varying angles from which governmental research depresses the incentive to continue unshackled research by industry, may I join thousands of my fellow citizens in commending to you for your early perusal, John Jewkes' late book entitled, *Ordeal by Planning,* published by the Macmillian Company? Jewkes, an Englishman, discusses, with uncanny perception and persuasive documentation, the futility of Britain's attempt to level all men but the planners (and the one man out of eight who represents government and keeps the other seven harnessed to the plan). He prefaces his introduction with a quotation from *The London Times,* August 11 1846, which reads as follows:

"The greatest tyranny has the smallest beginnings. From precedents overlooked, from remonstrances despised, from grievances treated with ridicule, from powerless men oppressed with impunity, and overbearing men tolerated with complacence, springs the tyrannical usage which generations of wise and good men may hereafter *perceive and lament and resist in vain.* At present, common minds no more see a crushing tyranny in a trivial unfairness or a ludicrous indignity, than the eye uninformed by reason can discern the oak in the acorn, or the utter desolation of winter in the first autumnal fall. Hence the necessity of denouncing with unwearied and even troublesome perseverance a single act of oppression. Let it alone and it stands on record. The country has allowed it and when it is at last provoked to a late indignation it finds itself gagged with the record of its own ill-compulsion."

Days could be spent profitably in contemplation of Mr. Jewkes' revelations, out of the frightening experiences of Britain, of what is in store for us, unless we at once dismiss our power planners and all their deluding devices. Time permits only brief references. One, of particular interest to those who must decide whether to open to our planners new channels by which to tap our treasuries for the support of research controlled by Government, is found on page 162 of Mr. Jewkes' book, from which I quote:

"The highest type of intellectual effort, such as pure research in the sciences, can only be carried out where the individual is virtually autonomous. Those who are to do the path-breaking work for society, those upon whose success progress so uniquely depends, must in their activities be allowed to go their own gait, to follow their own intuitions wherever they lead. Now it is logically impossible to permit these liberties in a planned economy. They outrage the general principles of orderly control; no sincere and authentic planner can be expected to sympathize with the idea that one group in the community does not fit in with the general scheme and is up to tricks which the State knows nothing about. *Pure research must inevitably wither in the planned economy for a double reason. It cannot go on in that sort of environment. And, in any case, it will not go on, because those who are capable of it will be disgruntled by what appears to them the foolish policy of the State in failing to provide the only environment in which they can work."** (Emphasis supplied.)

Appended by asterisk to the above-

quoted material is an ominous footnote which reads:

> *"*"*One of the most striking illustrations of this is provided by the wholesale resignation of the experts on jet propulsion, who had given Great Britain a substantial lead in this field, when the Government took over this type of research.*" (Emphasis supplied.)

A Planners' Paradise

What can happen in a planners' paradise, so long as transfusions of outside cash continue, is reported on page 94 of March 14, 1949 *Time* under the heading: "Last of the Tudor IVs," opening with the sentence:

> "In the first lap of the postwar international air race Britain had bet on the long-beaked 'Avro Tudor'."

After reporting how British Overseas Airways tested their performance and refused to accept Tudors—how two out of four Tudors disappeared in salt water with a total of fifty-one aboard—it reports how Civil Aviation Minister Lord Pakenham solemnly intoned:

> "I have regretfully come to the conclusion that this type of aircraft should not continue to be used for carrying passengers."

The report closed with a quotation from the lips of Avro Managing Director Sir Roy Dobson, in this sentence:

> "I would like to see the whole lot (of Tudors) swept out and burned so that we can *forget this ghastly chapter* and start again."

And have you seen the recent news reports of the new British $12,000,000 Royal Mail Liner Magdalena that, after grounding on a reef, "with a rending sound like the falling of a giant tree, broke in two, her nose rising crazily in the air"—on her maiden voyage? Truly, life with planners can bring some major surprises.

Planners of the Anti-trust Division of the Department of Justice are credited with the authorship of the succession of Science Foundation bills — beginning with the Kilgore "Science Mobilization Bill" in 1943 and following through to those now pending. That Division is also credited with most of the draftsmanship of the Atomic Energy Bill. Its planners appear to have no fear of giving Government further control of research under proposed Science Foundation legislation.

Thus Government planners, although they give lip service to "free enterprise" and all its traditional mechanizations, provide frequent evidence that they in fact abhor business men and their methods. An example is to be found in the report of the Committee on Labor and Public Welfare on Senate Bill S. 247, now passed by the Senate. On page 2 of that report is found the following paragraph:

> "Spokesman for industry have revealed that more than 150,000 industrial establishments have no basic research facilities whatever, and that those establishments with such facilities *are pursuing goals which are peculiar to their own interests, without proper coordination with the general basic research problems of the Nation.*" (Emphasis supplied.)

Without the tough competitive

muscle development by industrial establishments in "pursuing goals peculiar to their own interests" World War II could not have been won. Upon the advent of that war the sum total of all such muscle was coordinated with overwhelming effect, in spite of widespread monkey-wrenching by dictatorial bureaucracy invested by planners with powers beyond its capacity to exercise effectively.

Will so few ever serve so well so many—if the few must rely upon fighting equipment produced not under hard-bitten competitive conditions but instead out of the feather-bedding of planned research and production? Who would rule Britain today if her sons who flew to stop the Luftwaffe over London had been equipped with planes and guns made by the planners who control her fate today?

Today in Britain is heard the warning voice of Winston Churchill, her wartime Prime Minister, who immortalized in a single sentence the few on wings who broke the barbarous blitz of Hitler's bombers. At Sowerby, England, March 13, 1949, Churchill said:

> "The socialists are making us live in a fool's purgatory upon the generous grant of free enterprise, capitalist America."

Inverting the import of his famous phrase, this greatest Britain's statesmen added:

> "Never before was so much manpower and money used for so little result in security."

Our Nation was saved, at least temporarily, through the application of phenomenal industrial power which could never have developed had research and invention in American industry been subjected to the depressive and destructive controls planned for it through the deceptive application of techniques of the Anti-trust Division for "divestiture and divorcement."

The Science Foundation Bills

Nor could we have survived the significantly related potentials for punishment wrapped up so cleverly in the adroit phrasing of Science Foundation Bill S. 247 and companion Bill H. R. 12.

Those bills, as has been pointed out by Dr. Louis Koenig, F.A.I.C., "contain the germs of two authorities which may eventually strangle both the chemist and his employer. Those authorities are (a) the authority to indiscriminately grant scholarships in science and engineering. (b) the authority to engage in entrepreneurial research."

The bills, in lately accepted legislative fashion, impose upon the foundation no need to state the purposes for which withdrawals of money are to be used—and no certain obligation to render an accounting for moneys expended.

As with many other governmental agencies, no doubt much of the talent of the personnel would be devoted to contriving pressures to justify con-

stantly expanding appropriations. The money thus drawn, through taxation, from productive people of our Nation, could be, and it is believed would be, employed to expand constantly the political and economic influence of the foundation—among other ways through two unrestrained activities, (a) the pooling of patents and (b) the award of scholarships to an increasing avalanche of those politically obligated men whose principal qualification for such preferment might be measured by the capacity of their Congressman for applying the correct pressures at selected spots at the right time.

Patents

Pools of U.S. patents, whether controlled by our own bureaucracies or by those of a foreign nation, can be used with deadly effect in the bludgeoning of reluctant manufacturers. Possibly some of you already have felt the impingement of current well-directed British maneuvers to extract American dollars by a threat to roadblock our developmental programs through British-owned U.S. patents. It is understood that those Britishers are quite frank in admitting the studied purpose of this campaign.

And if you doubt the reluctance of any agency of our Government to relinquish any part of the capacity of any U.S. patents it presumes to own, for impingement upon industrial research and production, it is suggested that you write to the various agencies and ask each to tell you the terms upon which it will grant a license.

Legislation proposed repeatedly by National Patent Council, and constantly gaining support in important quarters, is enactment of a Federal law providing that whenever the Government acquires a patent or a patent right of any kind it shall immediately expire with the same effect as termination by time limitation—excepting that it might still be kept available to any citizen to assert against any product manufactured in a country foreign to the United States.

One argument of the planners against such legislation is that it is unnecessary — because non-exclusive licenses are issued to all comers under patents owned by Government. Superficially that seems real nice of the government.

However, upon inquiries recently directed to various governmental agencies it was discovered that those agencies feel impelled to give conclusive effect to their own judgment in the matter of determining who shall have a license and under what conditions. For example, there was addressed, under date of January 24, 1949, to various governmental agencies the following letter:

> "Will you please advise what steps should be taken to obtain a license, right to use, and other details under one or more of the U.S. Patents in which your Department is listed as the owner thereof."

Among replies received to the above

letter were the following:

> The NAVY DEPARTMENT office of Naval Research, replied on February 4th. Their letter contains the following significant statement:
>
> "To enable this office to determine whether a royalty-free license may be properly granted it is requested that the applicant for license furnish the following information:
>
> "(a) What benefits to the public are expected to accrue if the license is granted.
>
> "(b) What patents or applications if any, the applicant for license is willing to *cross-license to the Government* as *consideration* for the license to him.
>
> "(c) The experience and facilities he has that will enable him to exercise such a license with benefit to the public.
>
> "(d) Where will the manufacturing be done."

That letter enclosed a form of contract to be signed by the citizen, if it is decided by Government that he is entitled to a license. That contract makes the licensed citizen subservient to Government in a number of ways. He must submit statements "setting forth the experience and 'know-how' acquired by licensee in the exercise of this license." The most ruthless provision, which leaves the licensee and his investments completely at the mercy of the Government, reads:

> . . . "that Government may *revoke* this license, after written notice to Licensee and an opportunity given for Licensee to be heard in the matter, upon a finding by Government that Licensee has knowingly committed any breach of this license OR that it is otherwise in the public interest that this license be revoked."

In its reply the TENNESSEE VALLEY AUTHORITY, by Joseph C. Swindler, General Counsel, asked for the identity of the applicant and his business, and closes the letter by saying:

"We will then advise him as to *whether* and under what general terms the license may be granted."

The TREASURY DEPARTMENT replies that after receipt of further information it "will indicate the conditions subject to which the grant might be made and the form and content of the requisite application of request."

The DEPARTMENT OF THE INTERIOR enclosed four pages of "Regulations of the Department relating to such licenses." The regulations state that the Government shall "determine *whether* the license shall be granted."

The licensee may be required to submit technical or statistical reports concerning the experience acquired through exercise of the license which provides for REVOCATION BY GOVERNMENT if it finds the terms of the license have been violated and that revocation is in the public interest. The regulations state that "a *cross-licensing* agreement may be considered adequate consideration.

THE DEPARTMENT OF THE ARMY *states that "consideration will be given to the application" upon receipt of certain information requested in its letter.*

The DEPARTMENT OF COMMERCE *asks for information and says, "Upon receipt of this information the matter will be submitted to the Bureau concerned for its recommendation."*

The FEDERAL SECURITY AGENCY *states, "Licenses generally have been issued on a* revocable, *nontransferable, nonexclusive, royalty-free basis.*

The OFFICE OF ALIEN PROPERTY, DEPARTMENT OF JUSTICE, *states that patents "are being licensed on a* revocable *nonexclusive royalty-free basis under our standard terms."*

The DEPARTMENT OF AGRICULTURE, *as to its licenses, states, "They are also made* revocable, *and nontransferable, but the Department would not, of course, revoke a license except in good reason . . ."*

A forbidding condition common to nearly all such licenses is that the license may be *revoked* arbitrarily by Government. That makes the license a very hazardous thing for the citizen. No citizen can hope to benefit by a license unless he first invests considerable money for production and distribution. Men in business are not inclined to make such investments on any confidence they have been able to generate in the stability of persons who might exercise for Government and "in the public interest" such revocation privileges.

Here we see Government holding tenaciously to its controls of rights under patents in its expanding pools. The Anti-trust Division of the Department of Justice denounces restrictive licenses, patent pools and requirements that licensees grant rights to licensors under improvement patents. Nevertheless, Government itself proceeds to issue restrictive licenses, and builds patent pools by demanding not only rights under improvement patents but also experience reports transmitting "know-how."

The only way this stifling encroachment of power planners upon American industry can be stopped effectively is by a law, such as herein suggested, implementing the Constitutional intent that patent rights should be held only by the citizen.

The threat of such unconstitutional acts of agencies of Government with relation to patents is of such grave import as perhaps to justify inclusion herein, excerpts from a communication addressed by National Patent Council to the Department of Commerce, Office of Technical Services, Washington, D.C., under date of October 9, 1947, as follows:

> "A patent grants only a negative right. That right is to exclude others, for the limited period of seventeen years, from manufacture, sale and/or use of the invention—at the will of the patent owner, and to any extent he may desire.
>
> "When our Government, which is presumed to be the entire citizenry, acquires a patent, that patent by every Constitutional intent automatically expires because there is none left to exclude. To hold differently is to hold that our Government has become a competitive device imposed upon the citizen and deriving its powers arbitrarily from a source apart from any formalized expression of the will of its people. The Government, which has granted the patent, in presuming to own it places itself in the untenable position of having vested in itself, without authority, a right which clearly, by Constitutional intent, can be possessed only by the citizen."

Gifts from Government

Perhaps there could be devoloped some method by which our courts could be persuaded that Congress has not intended that there should be substituted for its legislation, in determining any issue, the so-called "administrative experience" of the planner.

In giving such administrative experience decisive effect, the courts have ignored dangerously an age-old rule by which is measured the value of the testimony of a witness preju-

diced by a contrary purpose of his own.

To deny that the planners have a purpose contrary to the interests of those they attack and contrary to vital concepts of our Constitution is to confess something less than a will to see.

That purpose, as some competent observers have insisted for years, has one of its broadest reflections in efforts to accelerate constantly the draining of personal and corporate resources into a vast governmental pool—through every possible exercise of the power to tax. Under the stifling influences of excessive taxation we are perhaps reaching the zenith of an arbitrary power that has destroyed incentive in whatever civilization applied. Such pressures today add impetus to all depressive influences intended, as a part of a general attack upon industry, to drive it constantly further under the controls of the planners.

Our universities, for example, once looked almost entirely to endowments from the surpluses of industry out of which to support their research programs—so directly related to industry. Today that source in industry is well advanced in the process of drying up completely. This makes it plausible for Government to argue that, among other institutions, our universities must be supported in their research by Government funds.

Perhaps it is expecting too much of those educational institutions to suggest that by seeking or accepting large grants of funds from Government their staffs will be subjected inevitably to constantly intensifying interference from the planners of Government.

Gifts from Government are wired for sound. That sound is not the voice of the tax-burdened citizen whose labors produce the dollars. It is the hidden voice of Government — the will of the power-hungry planner, bribing the thoughtless citizen to submit us all to slavery.

On page 112 of the *Record of the Hearing on H.R.* 6007 (a National Science Foundation bill identical with H.R. 12 now in Committee) there appears a statement by Karl B. Lutz in which we find the following:

> "By the power of the purse the Foundation will inevitably try to direct the course of research. Not long ago Chicago University refused to accept Federal funds for a certain project. In making the refusal, Professor Thortin R. Hogness said, "If we take it, the American taxpayer foots the bill while the bureaucrat in Washington calls the tune.'"

Not all representatives of our universities seem to hold to the views of Prof. Hogness. In the long list of more than two-hundred men who have testified for National Science Foundation Bill, beginning with the Kilgore National Science Mobilization Bill in 1943, there are found, in addition to men now publicly identified by Government with Commu-

nist and Communist-front organizations a long procession of representatives of educational institutions. Such men seem to have closed their eyes completely to the social, political and economic dangers of these bills. They supported the legislation with the argument that Federal funds are needed urgently for the purchase of buildings and equipment to satisfy their requirements for research.

It seems a bit incongruous to see good scientists promoting legislation intended to make available endless governmental funds for making several scientists grow where one grew before. The promoters of such a flood of scientists to compete for what must remain a limited number of jobs in science, it would seem, might be planning to direct their children into some field other than science, where competition perhaps may promise to be less gruelling. Thus we see an added impingement by Government upon the field of industrial research. Thus is punishing economic imbalance forced by Government.

That these, and many other, governmental encroachments upon research, constitute a frightening pattern of planning for power, seem constantly more obvious as that pattern defines itself.

What can be done to retard this mounting threat to the American machine for production is a question growing insistently in the minds of many thoughtful citizens.

Science is a Unifying Force

"Science is and must remain a strong unifying force among peoples." declared Dr. Foster Dee Snell, past president, A.I.C., in accepting the gold medal of the Society of Chemical Industry, in Manchester, England, July 13th. "Scientists around the world have always been leaders in international friendship, and have always been willing and eager to promote the exchange of information internationally. This is the way it should be. Let us hope that such artificial barriers as may be raised from time to time against free interchange will be only temporary, so that scientists may continue a strong unifying group among the peoples of different countries."

Dr. Snell, whose special field of interest is surface active phenomena, also addressed the meeting on "Detergents and Detergency." Dr. Snell is the second American to receive the Medal of the Society of Chemical Industry, which is awarded biennially to a person "who has attained eminence in applied chemistry." The first American to receive it was Prof. Ira Remsen of John Hopkins University, in 1904.

Tice Elected Delgate

Dr. Linwood F. Tice, assistant dean, Philadelphia College of Pharmacy and Science, has been elected delegate of the Philadelphia Branch of the American Pharmaceutical Association.

Gordon Research Conference Elects

Prof. W. George Parks, F.A.I.C. of Rhode Island State College, and director of the Gordon Research Conference, announced recently that Dr. Charles N. Frey, F.A.I.C., director of scientific relations of Standard Brands, Inc., and Prof. Herman F. Mark, F.A.I.C., of Polytechnic Institute of Brooklyn, have been elected to the Management Committee of the Conference.

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Rubber Research Institute Needed

Dr. Harry L. Fisher, past president of the A.I.C., in accepting the Charles Goodyear award from the Division of Rubber Chemistry of the American Chemical Society, May 25th, again urged that a rubber research institute be founded to carry out fundamental studies on the chemistry of rubber. Dr. John T. Blake, F.A.I.C., director of research, Simplex Wire and Cable Company, recounted Dr. Fisher's accomplishments in developing rubber-based adhesives and in vulcanization.

Rudd Plans Florida Plant

The Rudd-Murray Lacquer Corporation, Asheville, North Carolina, has sold its business to the Reliance Varnish Company of Louisville, Kentucky. J. F. Rudd, F.A.I.C., president of the former corporation, is vacationing in Winter Park, Florida, where he expects to make his home. It is his intention to establish a paint plant in or near Orlando to service the Florida trade.

Special Courses

Dr. Raymond E. Kirk, dean of the Graduate School, Polytechnic Institute of Brooklyn, Brooklyn, N.Y., announces that openings in non-degree programs in the graduate school are still available, for the fall semester, for practicing chemists and engineers seeking information in specialized phases of their work. Registration begins on September 19th.

—Harris & Ewing

Dr. E. R. Weidlein

Presentation of Honorary AIC Membership to Dr. Weidlein

President Lawrence H. Flett

The American Institute of Chemists

(Honorary Membership was presented to Dr. Weidlein, F.A.I.C., at a meeting of the Pennsylvania Chapter held June second in Philadelphia, Pa.)

THE AMERICAN INSTITUTE OF CHEMISTS is a professional society. As such we are concerned with chemists rather than with chemistry. Furthermore, the INSTITUTE is concerned with the success of chemists

and with the recognition of their successful accomplishments.

While scientific societies are interested in scientific advances, the INSTITUTE is interested in the chemists who make the scientific advances possible.

Progress in the science of chemistry is made possible by laboratory research workers. They are very important, but there are other people essential to scientific progress. The educators, the editors and the authors; they are all important. The philanthropist or the executive who finances research plays a very necessary part in progress. Among all the people necessary to advance the science of chemistry, there is a very special importance to be attached to the man who can organize, build up, and direct a successful laboratory.

The accomplishment of the true scientist is limited because he works as an individual. A research executive, on the other hand, can successfully direct the work of hundreds of individuals, provided he has the administrative skill required to pick capable research leaders.

The award of an Honorary Membership to Dr. Weidlein should be of particular interest to all members of the INSTITUTE, because it is an award for leadership rather than technical skill. The Institute enjoys the special privilege of recognizing the truly great contributions to chemistry which are made outside of the chemical laboratory.

Dr. Weidlein was a qualified research chemist before the Mellon Institute was ever organized and in the earliest days of the Mellon Institute, he carried on productive chemical research there. It is hard to believe that his subsequent career could ever have been so fruitful if he had not had that first hand knowledge of research. Those early years of research, as productive as they were, have been more and more outshone by Dr. Weidlein's brilliant and successful development of the Mellon Institute.

Dr. Weidlein has been in active charge of the Mellon Institute for approximately thirty years. During that time it has developed from a modest beginning to one of the greatest research groups in the world. This chemist's career furnishes us with an outstanding example of a man whose life has been spent with complete devotion toward one objective: the creation of a great independent research organization. We hear young chemists advise each other that the way to get ahead is to frequently change positions. Certain individuals have found success following this procedure, but a far greater group of individuals have found success, as Dr. Weidlein has, by undivided loyalty to a single organization or objective.

What pride of creation Dr. Weidlein should have as he surveys his life

work: a mighty independent research organization housed in a veritable temple to science. This wonderful organization and the many contributions which it has made to science and industry are his reward for efficient management and direction.

For the thirty years that Dr. Weidlein has been in charge of the Mellon Institute, no man in the world has done more to make people realize the value of research. Productive research at the Mellon Institute has convinced many industrial leaders to undertake extensive research on their own part and the Mellon Institute has trained the men who have organized and directed the new laboratories.

Dr. Weidlein has been a laboratory research chemist. If he had been fifty laboratory research chemists working for fifty life times, he could not have made so great a contribution to the science of chemistry and to the public welfare as he has by building up the Mellon Institute from its meagre beginning to an organization with hundreds of research workers.

To the outsider the phenomenal success of the Mellon Institute is based on its record of accomplishment. There are too many people in the world who believe that basic research must be useless research. The Mellon Institute stands as a living demonstration of the untruth of that great fallacy. The Institute has carried out and is carrying out basic research, but above all it is carrying out useful research which helps chemists and benefits mankind.

Much of Dr. Weidlein's success as an administrator has rested in his ability to pick the right man for the right research problem. He has surrounded himself with chemists whose work has made them and the Mellon Institute widely known throughout the world. Dr. Weidlein has been very generous in helping to bring recognition to those chemists in his organization who have made possible outstanding technical accomplishments. A second important reason for his success has been the ability to choose and properly organize worthwhile research projects and to be constantly in touch with those projects.

THE AMERICAN INSTITUTE OF CHEMISTS appreciates Dr. Weidlein's success in bringing the knowledge of chemistry and of the wonders it makes possible, to the public. He has generously met persistent demands on his time as a public speaker and author, for the everlasting good of our profession. His frequent discussions of the accomplishments of the Mellon Institute have been given with a dignified pride which has been a source of encouragement and stimulation to research chemists in many fields.

This nation still needs Dr. Weidlein's guidance and the help of the independent research organizations to meet the serious unsolved problems of the future.

The award of Honorary Member-

ship in THE AMERICAN INSTITUTE OF CHEMISTS is a recognition and an appreciation by chemists for the great advances in chemistry and in the chemical profession which Dr. Weidlein has made. His loyalty to the ideals of the founders of the Mellon Institute has our sincere admiration.

Edward Ray Weidlein, Fellow of THE AMERICAN INSTITUTE OF CHEMISTS, I have been privileged by the Pennsylvania Chapter to come to Philadelphia to award to you the certificate of Honorary Membership in THE AMERICAN INSTITUTE OF CHEMISTS. In honor of the occasion the Pennsylvania Chapter has had prepared an illuminated scroll which reads as follows:

"THE AMERICAN INSTITUTE OF CHEMISTS Awards Honorary Membership to Edward Ray Weidlein. His professional leadership has resulted in unending benefit to the science of chemistry and to its application for the benefit of mankind."

Acknowledgement

In acknowledging the award, Dr. Weidlein spoke informally on the work of the Mellon Institute, including many of the technical developments which originated there. He traced the simultaneous development of the profession of chemistry, and mentioned several of the men associated with Mellon Institute in its early days who are now recognized in industry for their achievements. The talk was followed by a lively question-and-answer period in which those present participated eagerly.

Weidlein Honored by Rensselaer

Dr. E. R. Weidlein, Hon. A.I.C., was presented with the Honorary Degree of Doctor of Engineering, at the commencement excercises of Rensselaer Polytechnic Institute, June tenth.

Association Membership Broadened

The Association of American Soap & Glycerine Producers, Inc., has broadened its membership to include manufacturers of synthetic glycerine and of synthetic detergents. "The extension of membership to companies making synthetic detergents makes possible a greater effort to advance cleanliness standards of our people. . . . Successfully developed, it means higher consumption and greater sales of cleansing products of all types," according to Roy Peet, manager of the Association.

Society for Applied Spectroscopy

The Society for Applied Spectroscopy will meet, October 4th, at the Socony-Vacuum Training Center, 63 Park Row, New York, N.Y., to hear Prof. Ralph H. Muller of New York University speak on "Instrumental Methods of Analysis."

Annual Report 1948-1949

Committee on Patents

(Presented to the A.I.C. Annual Meeting, May 6, 1949)

FOR the purpose of facilitating consideration of this report, it has been divided into two parts. The first part discusses Federal legislation which has been proposed in connection with patents; and the second part is concerned with Patent Practice.

PROPOSED PATENT LEGISLATION

During the current session of Congress, many bills have been proposed in the House and Senate in connection with various aspects of patents. Those bills related to the same subject matter will be considered as a group. This applies particularly to proposed legislation in connection with National Science Foundations and extensions of Patent rights.

National Science Foundation Bills

A number of bills have been submitted relating to the subject of National Science Foundations; they include S. 247, H.R. 185, H.R. 359, H.R. 2308, H.R. 2721, and H.R. 2751. While the text of these bills varies, they are all modifications and variations of the old Kilgore Bill, which was submitted some years ago. Every session of Congress sees the re-submission of the old Kilgore Bill in a new dress and with new verbiage. In substance, these bills would put the Federal Government into the business of research, the making of inventions and the acquiring of patent rights. The objections which were pertinent to the old Kilgore Bill are also applicable to the proposed bills. (An analysis of the Kilgore Bill was published by A. W. Deller in *Mining and Metallurgy*, January 1945.)

It is my opinion that the most serious objection is that all of these bills are unconstitutional. As a matter of fact, at a meeting I attended some years ago in connection with the Kilgore Bill, I asked the person who had formulated that bill to point out what provision of the Constitution was the basis of the proposal. He admitted that he did not know of any specific Constitutional provision which could be cited as the basis for the proposed legislation.

Another serious objection is that no real need for the proposed legislation has been shown. In fact, it really involves a duplication of large-scale activities now performed by existing Governmental sub-divisions and bureaus, as well as numerous private organizations. For example, constitutional agencies, such as the Army, the Navy, the Air Force, the Department of Agriculture, the Bureau of

Mines, the Bureau of Standards, the Public Health Service, etc., are conducting appropriate research in their authorized spheres. In addition, there is a vast amount of research going on in universities, private companies, research foundations, and laboratories, hospitals, state bureaus, and the like. It is estimated that we are spending over $500,000,000 annually on industrial research; we have about 2500 research laboratories, employing over 7000 scientists, engineers, and technicians.

Furthermore, the incentives of our patent system and system of free enterprise are still effective in stimulating private activities to solve all problems which present themselves. At a time when further governmental expenditures should be scrutinized with care, there seems to be no real need indicated for the creation and expense of another governmental bureau, superimposed upon the vast amount of private and government research that is already being carried on. Furthermore, there is a danger of too great political control over a procedure involving so many important factors as those involved in scientific research. No stronger lesson needs to be taught than the recent action of the Russian government in making official certain incomplete researches in the biological sciences, which in fact are negatived by the findings of science to date in connection with the transmission of acquired characteristics. In view of the foregoing, it is believed that all of the National Science Foundation Bills should be opposed.

Extension of Patent Rights

Several bills have been introduced in the House and in the Senate for the extension of patent rights. Thus, the bills identified as S. 646, S. 647, and S. 676 are concerned with extension of Design Patents Nos. 54,296; 55,398, and 92,187 pertaining to badges of "The American Legion," "The American Legion Auxiliary," and "The Sons of the American Legion," respectively. H. R. 3079 is concerned with the extension of Design Patent No. D-95,222 relating to a card game scoring board for a period of ten years from the date of expiration of such patent. H.R. 3135 is concerned with extending Patents Nos. 1,914,322; 1,921,862; 1,921,863; 2,050,555; 2,073,360; 2,103,055; 2,192,255; 2,282,302; 2,334,471; and 2,356,441 for a period of seven years from the date of expiration of each of the aforesaid patents. H.R. 98 is concerned with the extension of the terms of certain patents in the cases of persons who served in the armed services during World War II. H.R. 99 is concerned with the assignment of patent rights by the United States to service men who made the inventions and discoveries between the period beginning with December 7, 1941 and ending on the date of termination of

hostilities as proclaimed by the President and who made application for such assignment to the Commissioner of Patents within six months after the date of the termination of hostilities.

S. 540 is concerned with an extension of priority rights to December 31, 1949 under Section 1 of Public Law 690, Seventy-ninth Congress, approved August 8, 1946, as amended.

H.J.RES. 154 provides for the extension of patents whenever the use thereof was prevented by war or other causes and for the extension of patents to persons who served in the military or naval forces of the United States during the war.

All of these bills are objectionable as they differentiate between patent property and other kinds of property, the use of which was likewise prevented during the war, etc. It is believed to be unsound to single out patents as a special form of property which should be granted special and discriminatory privileges. Furthermore, the uncertainty which would be caused by the extension of rights is incalculable. Accordingly, it is recommended that all of the foregoing bills be opposed.

H.R. 577 is a bill to give an ex-officer of the U. S. Signal Corps the right to file a patent application even though more than one year has expired from the date of publication of the subject matter of the invention. It is asserted that the United States Government would not be harmed by a waiver of the statutory bar since the ex-officer has granted a license to the United States. It will be appreciated that a serious question of policy arises and that a bad precedent may be established by the waiver of a statutory bar. This is particularly true in the present case because the invention deals with radar and may very well have widespread commercial and industrial repercussions. It is believed that a case of this sort is similar to the examples cited in the Attorney General's report entitled "Investigation of Government Practices and Policies" (see particularly Vol. II, pp. 269 et seq.). The Attorney General's recommendations indicate strong opposition to such cases where Government employees have made inventions in line with their official duties and then sold their patent rights to their personal advantage. A letter has been written to the Attorney General calling his attention to this bill. It is believed that this bill should be opposed.

H.R. 1711 and S. 868 are both concerned with the dissemination of technological, scientific, and engineering information to American business and industry, and for other purposes. These bills are somewhat similar and correspond generally to the old Fulbright Bill, S. 493, of the Eightieth Congress. The new bills provide for Government financing of industrial research, undertaking the

evaluation of inventions to determine whether they are "promising" and, if so, providing Government funds for developing the "promising" inventions. These bills may provide the basis for a bureau which might eventually expand to include objectional features which were eliminated from the original Fulbright Bill. One of the main provisions of the bill relating to the recording of inventions is definitely unsound. For example, no good purpose is evident in undertaking the recording of inventions for which no patent application has been filed, and which is merely to provide evidence of the date of recording such inventions. It is believed that such recording is likely to create a false sense of security in the minds of the inventors. It is even more objectionable than the old system of filing caveats in the U. S. Patent Office which was abolished many years ago. Any proper function contemplated under these bills can be conducted by the U. S. Patent Office or by various bureaus or departments of the U. S. Department of Commerce. It is, therefore, recommended that these bills should be opposed.

Peace Time Royalty Adjustment

S. 956 provides for the adjustment of royalties and like charges for the use of inventions for the benefit of or by the United States. It is to be noted that patents are singled out as distinct from other forms of property and are subject to discrimination. It is believed that there can be no justification for the proposed peace time royalty adjustment act which is discriminatory in character. In general, proposals of this character are believed to be unsound and improper for peace time. Consequently, this bill should be opposed.

U.S. Court of Claims Suits

H.R. 2965 and S. 1046 provide a statutory limitation on suits brought against the government in the Court of Claims and also additional defenses in such suits. Thus, the proposed legislation provides that the government may plead as a defense any written description, drawing, photograph, physical exhibit, or other physical evidence of research or development work originating with the Government or those in privity with it in the files or custody of the Department of the Army, the Department of the Navy, the Department of the Air Force, or any other Governmental agency. It is also provided that the U. S. Court of Claims shall not entertain any suit based upon the use or manufacture by or for the United States of any article owned, leased, used by, or in the possession of the United States prior to June 25, 1910. While the statutory limitation is proper, it is believed that the special defenses are inequitable. The Government now has all the defenses available to any other infringer and should not be placed in a special position to dig into its private files

to unearth forgotten disclosures any more than an ordinary infringer now has such right. Accordingly, it is believed that both of these bills should be opposed.

H.R. 973 makes provision to regulate in the United States Court of Claims and in the United States district courts suits for payment for the infringement of patents infringed by or for the Government and for the use of inventions used by or for the Government, for the better protection of the rights of inventors and owners of patents, for stimulating the making of inventions useful to the Government, and for insuring payment for the use thereof when used by or for the Government and its contractors. The bill proposes to remedy shortcomings in the procedure for suits brought against the Government in the Court of Claims, and specifically gives the patent owner the right of discovery. Furthermore, the bill provides that the patent owner has the option of bringing the suit in the U. S. Court of Claims or in a U. S. District Court having jurisdiction of the district in which the patent owner is an inhabitant or in which acts of infringement shall have been committed by or for the United States or in which those who shall have committed the acts of infringement by or for the United States have regular and established places of business. It is believed that the provisions of the bill are fair, just and equitable and that, therefore, the bill should be approved.

Patent Opposition Proceeding

H.R. 842 contemplates the amendment of the Patent Statutes to incorporate opposition proceedings therein. The experience with such proceedings in foreign countries has demonstrated that they are unfair and inequitable, particularly to the poor and weak individual inventor or patent owner. In actual practice with opposition proceedings in foreign countries, it has been found that large corporations utilize such proceedings either to prevent the granting of the patent entirely, or to secure a free license. In view of the foregoing, it is believed that this bill should be opposed.

Suits to Obtain Patents

H.R. 974 provides for the amendment of Section 4915 of the revised Statute (Title 35, Section 63, of the U. S. Code, as amended by Section 72a) to facilitate the prosecution of suits to obtain a patent. The proposal provides that if, after filing the complaint, it shall appear that one or more of the parties defendant are unnecessary or that one or more other defendants should be included and that the suit should therefore have been filed in the court of another district, the court of original jurisdiction shall have the power to direct that the papers or said suit be transferred to the court of the correct district and that the suit shall proceed

in that court just as if it had been originally filed therein, and either court, on motion, may grant additional time in which to bring in parties necessary to the suit. It is believed that the provisions of this bill are desirable to correct inequities and to facilitate litigation under Section 4915 as amended. It is therefore, believed that this bill should be approved.

Regulation of Foreign Contracts

S. 11 provides for the protection of foreign relations and the promotion of trade and commerce with the United States and the safeguarding of the security of the United States by requiring the disclosure to the United States of information affecting foreign trade and commerce.

The bill provides that each domestic company and each foreign company doing business in the United States shall register with the Attorney General a copy of any foreign contract of a certain character. Among the foreign contracts covered are those involving a license, cross-license, or sub-license under any United States or foreign patent or application or those involving any assignment of a United States or foreign patent or patent application. The foreign contracts registered under the proposal shall be public records and open to public examination and inspection at such reasonable hours and under such regulation as the Attorney General may prescribe. As the main feature of the proposed bill is to safeguard the security of the United States and as the provisions of this bill appear to do so fairly and equitably, it is believed that the bill should be approved.

PATENT PRACTICES

Since the present Commissioner of Patents has taken office, he has instituted certain changes which are believed to be beneficial in the prosecution of patent applications and to facilitate the granting of patents. Among these changes are the new Rules of Practice in the United States Patent Office, which became effective as of March 1, 1949.

It is suggested that certain other improvements in Patent Office practice should be given careful consideration. These are as follows:

Greater Particularity in Examiner's Action

It is believed that the prosecution of patent applications can be expedited by having the Examiners formulate their actions more precisely. Thus, it is suggested that each paragraph of the Examiner's action should be numbered, and the corresponding paragraphs in the applicant's amendment should carry a corresponding number. Such a practice would enable the Examiner to ascertain quickly whether his rejection has been answered or not. This would also facilitate consideration of the file wrapper after the granting of the patent.

It is also suggested that under each

numbered paragraph, the Examiner should clearly state his position as to whether he is relying upon (1) facts, (2) law, or (3) personal opinion. With such a requirement, the Examiners would have to carefully analyze each situation and make better and more precise rejections. An applicant in turn would be able more quickly to deal with each position taken by the Examiner.

Affidavits as to Presence of Invention

At the present time, there is a considerable backlog of applications pending in the Patent Office. It is appreciated that the Office has been working under handicaps and has a large number of new and inexperienced Examiners. One of the factors which consumes considerable time in the prosecution of a patent application is the question as to whether the alleged invention is obvious in the light of the prior art. As this question in the last analysis involves a matter of personal opinion, many actions are formulated and amendments prepared and many cases are finally rejected on this ground. The question is then passed upon by the Board of Appeals, which is also heavily burdened. It is believed that the prosecution of applications in which this question is involved could be facilitated by a rule providing that, when an applicant makes an adequate and proper verified showing, supported by the affidavit of at least one person skilled in the art, that the prior patent or publication does not disclose the invention and that the invention is not obvious from the disclosure in such patent or publication, the claims in question should be allowed.

Abstracts of Prior Art

There has been much criticism in recent years to the effect that the Patent Office has granted patents for inventions which have already been disclosed in prior publications or patents. In order to prevent such a situation, a more effective examination of the prior art by the Examiner is necessary. To this end, it is believed that if an Examiner had at his disposal complete abstracts of the prior art, he would be able to cite all pertinent publications and patents. Accordingly, it is suggested that abstracters should be added to the Patent Office staff, whose sole duty would be to make abstracts of the prior patents and publications received by the Patent Office. In this manner, the Examiner would be provided with all the necessary material for making his search and for framing his actions in a convenient form.

Abridgments of U.S. Patents

A long range program should be considered of publishing abridgments of all U.S. patents along the lines of the British Patent Office in this respect. With such abridgments, any inventor, patent attorney, or manufacturer, could obtain the abridgments of all patents in a particular

sub-class and would be able to ascertain whether there was novelty involved in an invention under consideration. The abridgments could be published in bound form and sold at appropriate prices to cover the cost of printing, etc. Provision could be made for the addition of yearly supplements. With such a complete set of abridgments available at all times, the inadvertent granting of patents on inventions already disclosed in prior United States patents should be greatly decreased.

Separate Building for Patent Office

For many years, the Patent Office had an entire building to itself. After its incorporation in the Commerce Department, certain space in the Commerce Building was assigned to the various divisions of the Patent Office. During the war, a portion of the Patent Office was transferred to Richmond, Virginia, but this has now been returned to the Commerce Building. The result is that the Patent Office is at present working under crowded and unfavorable conditions. Consequently, it is believed that as soon as funds and building supplies are available, a separate building should be erected at the earliest possible moment to house the multitudinous records, the various divisions, and the Library of the Patent Office under one roof.

—Anthony William Deller,
Chairman

Exposition of Chemical Industries

The Twenty-second Exposition of Chemical Industries will be held in Grand Central Palace, New York, N.Y., November 28th to December 3, 1949. Dr. E. R. Weidlein, Hon. A.I.C., director of Mellon Institute, is chairman of the advisory committee. A.I.C. members serving on the committee include, Dr. Roger Adams, head of the Chemistry Department, University of Illinois; Francis J. Curtis, president, The American Institute of Chemical Engineers; Dr. Walter J. Murphy, editor, *Industrial and Engineering Chemistry,* Dr. W. T. Read, General Staff, U.S. War Department; Charles F. Roth, manager of the Exposition; Dr. N. A. Shepard, chemical director, American Cyanamid Company, and Robert L. Taylor, editor, *Chemical Industries.*

Ott Serves as U. S. Delegate

Dr. Emil Ott, F.A.I.C., director of research of Hercules Powder Company, will serve as a delegate, appointed by the National Research Council, to represent the United States at the Council meeting of the International Union of Chemistry in Amsterdam this September. Dr. Ott left for Europe in July with business trips scheduled to Switzerland, Germany, Belgium, Holland, England and Scotland.

Communications

The Forty-Plus Problem

To the Editor:

While Dr. W. J. Baeza's paper, "The Employment Problem", in the February, 1949, issue of THE CHEMIST, recognizes that an employment problem exists, it does not, in my opinion, state correctly the problem or offer a proper solution. According to the figures presented by the author, hiring of chemists in the period November-December 1948 has been rather brisk. However, Dr. Baeza states that if a chemist in the age bracket of 40 to 50 loses his job through no fault of his own (for instance, as a result of a merger), employment on another job becomes very difficult, if not impossible. A chemist approaching the age of 45 ought to be prepared to retire or to go into business on his own, if he can obtain sufficient financial backing.

Although established concerns which have considerable physical assets find it rather difficult right now to attract a sufficient supply of venture capital for their needs, a chemist presumably ought to be able to borrow from a bank on character only.

As far as retirement is concerned, I have not yet met a retired chemist who is much younger than 70. Many chemists drop out of the profession, of course, but they usually do it at an earlier age than 45—in most cases three years after graduating from college.

I would be inclined to dismiss Dr. Baeza's observations on the subject of older chemists as incorrect, if I did not know that they reflect quite accurately the current policies of major employers and the views of chemical executives who determine those policies. The policies in question originated in 1946-47. They represent a considerable change from the traditional attitude of employers and the customary pattern of employment in the American chemical industry.

While practically every advertisement in the help wanted section of a recent issue of *Chemical and Engineering News* specifies upper age limits, such references to age are very uncommon in old issues taken at random from the files. Experience rather than comparative lack of it was what employers wanted. The man who had the most extensive experience got the job, unless his age happened to approach sixty.

It is obvious that a man of 45 is not too old to do professional work of a type which does not require much physical effort and is based mainly on experience and knowledge. Why, then should chemists in the age bracket of 40-45 be discriminated against in post-war employment?

Immediately after the war, young

veterans had to be accommodated. This explains why the present situation arose, but it does not explain why that situation persisted until 1949 and is becoming more sharply accentuated as time passes. At present the joke about the chemist who is 25-years-old and has had 10-years of experience is no longer regarded as funny. Let us ask the employers why they insist on hiring recent graduates in preference to any other category of applicants, and as often as not refuse to hire anybody but a recent graduate.

The typical answer is that this is an established policy; experienced chemists stay with the company, while those who retire are replaced at the bottom. This is a pretty nice state of affairs, but the truth is that hiring on those lines did not take place for at least fifteen years (ten years of the depression and five years of war) and consequently cannot be regarded as typical. When the research department of a company expands, rapid expansion cannot be achieved by hiring exclusively beginners who have to be trained for at least two or three years.

Another objection made by employers is that an experienced man demands a higher salary. Well, the lack of demand for experienced men must automatically lower their salary to the level of that which is willingly offered to recent graduates, so that the problem of meeting a higher payroll no longer exists. Obviously this is not the correct explanation.

By discriminating against experienced chemists, and totally eliminating the employment turnover in the age bracket of 40-50, the industry is trying to freeze the somewhat haphazard personnel set-up which came into being during the war and as a result of the post-war adjustment due to demobilization. Normal professional competition was impossible then, now it is being artificially suppressed.

The status quo must be preserved at all costs—further expansion is impossible. It is desirable to do more research and to expand, but government policies prevent that. This is the attitude of the industry,

Traditionally the man who was best qualified to do a job received preference in employment under a system of unrestricted competition—not the man who fitted best into a static organization. It is hardly permissible to eliminate an older age group on the ground that its members have more than the average amount of experience, even though in some cases the experience may not be quite "specific" in the sense of the requirement made by personnel managers.

Small companies currently delay essential work indefinitely because allegedly no chemist who is looking for employment has the precise qualifications which are needed. Large concerns which do not operate at the highest rate of efficiency nevertheless

find it necessary to impose a partial or complete embargo on technical employment. Goods are scarce and prices still high, so why bother? It all adds up to one thing: an industry which has worked under government supervision and tutelage too long can no longer adapt itself to a free market. It has felt insecure since VJ day, except for the shot in the arm supplied by inflation. Now, industrial competition begins in the research laboratory. If professional competition in the chemical field is curtailed, monopolies and an economy of scarcity are fostered, and monopolies which are already in existence protected.

The exclusion of "old" chemists belonging to the age group 40 to 50 is one of the aspects of this development. Any such exclusion directly constitutes and indirectly implies a most flagrant violation of the principles of free economy under which American industry has achieved its pre-eminent status. For that reason, problems connected with this restrictive policy—a policy which is openly admitted because its significance can be easily observed—concern e v e r y chemist and the chemical profession as a whole, and not only because every chemist at some time reaches the age of forty.

—L. M. Blumenthal,
Research Chemist

The Public Is Interested

To C. P. Neidig:

I read your article in the March issue of THE CHEMIST (See "Professionalism" page 81 of that issue), with much interest. Perhaps, you should know from a casual experience of mine how really interested the general public is in wanting to learn what the chemist does.

As a member of the local Rotary Club which is made up of mostly business men engaged in a variety of agricultural activities, I was an unknown quantity among them. About a year ago, I was asked by the program chairman to prepare a talk of interest to the members having to do with chemistry and its application. I worked up a running story of my background and some chemical projects with which I have been associated, and to my amazement it was so well received because of its novelty, that I was soon showered with requests to repeat the talk to other service clubs. I have since given the same talk eight times, but to hold down the schedule so that it would not interfere with my work, the editor of a local paper has come to my rescue by placing a fee on my services to pay for incidentals when going out of town. As you notice from the enclosed folder, he has started a speakers bureau featuring a chemist.

So I go all out with you in encouraging the membership in making

their voices heard. There is an eager public ready to listen to the chemist more than any other field. This method is sure fire for getting professional recognition for the chemist.

I was delighted to see you sound this note and I felt you would be interested to learn of the experience of one chemist along the same lines.

—William V. LaRosa, F.A.I.C.

Financial Opportunities

To the A.I.C.:

Chemists who decry the lack of financial opportunities in chemistry should be heartened by the top ten U.S. incomes as reported in *Time* magazine. Of the eleven mentioned by *Time*, five were in the chemical or chemical specialties field, as follows: E. H. Little, president, Colgate Palmolive-Peet Company ($350,000); A. A. Somerville, vice president, R. T. Vanderbilt Company, Inc. ($319,398); Seton Porter, president, National Distillers Products Corporation, ($310,000); Theodore Seltzer, president, Bengue, Inc. ($295,613). The fifth, Betty Grable ($208,000) derives her income largely from the very complicated biochemical reactions which she has the ability to induce in the human male. In fact, there is an apocryphal story about a well-known enzymologist who was noted for his tendency to twist every conversation and every problem into the field of enzymlogy. He once met Betty Grable face to face and his first comment after the interview was: "My what a magnificent enzyme system!"

Dr. Louis Koenig, F.A.I.C.

Contemplation on the A.I.C Emblem

To the Editor:

It is well that the individual should pause occasionally during his life of great activity to reflect upon his purpose lest that with all his getting of knowledge, he getteth not understanding.

We, as members of THE AMERICAN INSTITUTE OF CHEMISTS, look to our emblem for its purpose and then to ourselves to see whether we are following "the star."

The INSTITUTE'S symbol being an alchemical one, we first ponder the Hermetic philosophy before we concern ourselves with the meaning of the symbol itself. Hermes, from the mythological standpoint, is the Egyptian god of Wisdom and Magic. Alchemical treatises are mystical, magical, or primitively chemical. One may say that alchemy is philosophy, the seeking out of the Sophia in the mind. The alchemists were reformers in their times, and religious men. Proposition: Man was the subject of alchemy and Man's improvement or perfection was the object of alchemy. We therefore see that the AIC is primarily interested in the chemist and

that the object of the AIC is the chemist's improvement and his perfection—a noble aspiration.

We shall now want to consider our emblem more from the technical side than the philosophical meaning. We learned that alchemy was a pretended science by which gold and silver were to be made by the transmutation of the baser metals into these substances, the agent of the transmutation being called the philosopher's stone. This stone of wisdom is called The Universal Essence; in conjunction with this, we note that the alchemical symbol of the AIC means, "The Essential Thing."* The Universal Essence is described as being the perfect *one thing*. How shall we prepare Essence, or The Essential Thing, that for which our AIC emblem stands? We have found the method but it seems as though we shall have a bit of trouble with procedure:

> Take two serpents which are to be found everywhere on the face of the earth, tie them in a love-knot, and shut them up in the Arabian *caraha*. Encircle it with fire. They turn into an ugly, venomous black toad which will be transformed into a horrible devouring dragon, creeping in the bottom of the cave without wings. Do not touch. Deadly poison. The dragon turns into a swan. Keep up the fire until the Phoenix appears. (Here note American Chemical Society pin of blue enamel showing the Phoenix arising from the flames.) It is a bird of the most deep colour with a shining, fiery hue. Feed this bird with the fire of his father and with the ether of his mother (the first is meat and the second is drink—without this last, he attains not to his full glory). . . .

Philosophize over that for a while. We will leave the matter at this point and will return to the AIC emblem. Around the emblem there is a circle suggested to mean "all inclusive." The alchemist's fire is described as the "all in all"; this is certainly all inclusive and points back to the preparation of "The Essential Thing" in which we were to "Encircle with fire" the ingredients employed to make the Philosopher's Stone. We like to think of the alchemist's fire of yesteryear as the chemist's fire, his zeal, his inward drive today.

This, then, is that to which we hold: It is well that the individual should pause occasionally during his life of great activity to reflect upon his purpose lest that with all his getting of knowledge, he getteth not understanding.

—John R. Albert, M.A.I.C.

* The AIC emblem was designed by D. D. Berolzheimer, who derived it from an alchemical symbol meaning "the essential thing," surrounded by a circle to indicate "all inclusive."

Appreciated

I want to express my appreciation concerning the splendid articles appearing in THE CHEMIST.

—Frank J. Steele, M.A.I.C.

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Council Meeting

The first Fall Meeting of the National Council will be held Friday, September 23rd, at the Chemist's Club 52 East 41st Street, New York, New York. Councilors are urged to attend this first meeting of the season.

Course in Food Regulation

A graduate course in food regulation, beginning September 21st and ending January 25th, will be given by Illinois Institute of Technology. Applications for registration should be sent to the Dean of the Graduate School, Technology Center, Chicago 16, Illinois.

Local Chapter News

C. P. Neidig, F.A.I.C.

Niagara

Chairman, James Ogilvie
Vice Chairman, Burt Wetherbee
Secretary-treasurer,
Dr. Maurice H. Fleysher
Representative to National Council,
Rev. James J. Pallace, S.J.
Reporter to THE CHEMIST,
Lyle J. Mahar.

The Niagara Chapter met June first to elect the officers shown above and to hear a lecture, and demonstration, by Dr. Robert H. Schuler on the "Production and Detection of Isotopes".

New York Chapter Meeting

The first meeting of the season will be held by the New York Chapter, A.I.C., on Thursday, October 6th at 6:30 p.m., at Major's Cabin Grill, 33 West 33rd Street, New York, New York.

A. J. Nydick, F.A.I.C., patent lawyer, will speak on "Exploiting a Patent" A large attendance is expected.

Chemist and Writer

F.A.I.C., Several years industrial research experience with nationally known concerns; M. S. degree leading university; author of technical book and number of papers; biochemistry and nutrition; industrial toxicology; textiles; cosmetics; library and patent research; now available for special work or consultation. Please reply to box No. 90, THE CHEMIST.

For Your Library

Inorganic Chemistry

Fifth Edition. Edited by P. C. T. Thorne and E. R. Roberts. Interscience Publishers. 939 *pp.* $8.75.

This fifth English printing of Fritz Ephraim's *Inorganic Chemistry,* edited by P. C. T. Thorne and E. R. Roberts, while it is in substance a translation of the German work, is much more than that. The original text has been both revised and enriched and brought up-to-date by the addition of figures taken from the latest British scientific publications.

Divided into six sections, the book begins with a general discussion of the elements, taking first the structure of matter and the theories of valence, and giving some space (though not enough in this reviewer's opinion) to the subject of radio-

activity and atomic disintegration before outlining the modifications and preparation of elements.

The other sections of the book deal with halogen compounds; oxides of hydrogen and of the metals; compounds of sulphur, selenium and tellurium, the nitrogen, phosphorous and arsenic group; the elements of the fourth group and boron.

Very little specific data are given; certain important elements, such as those of transuranium, are barely mentioned and much data relating to physical chemistry is lacking.

With these reservations, we can heartily recommend the book, for it should be useful both as a textbook for the student and as a reference for the research worker, since it provides a comprehensive background in the general relationships of inorganic.

For a book of this size and quality (paper and printing are both good) the price is moderate and the publisher should find a wide market for this volume.

—Dr. Frederick A. Hessel, F.A.I.C.

Outlines of Physical Chemistry

By Farrington Daniels. John Wiley & Sons. 715 *pp.* 6″x9¼″ $5.00.

The addition of nuclear or subatomic phenomena is a new extension in the teaching of physical chemistry. The boundry between nuclear physics and physical chemistry is an artificial one, because, after all, any form of energy is still associated with matter in motion. When a change in chemical nature occurs, the physical chemist steps in. This volume covers the conventional field of physical chemistry and extends it to subatomic changes, without neglecting the usual topics. Over one-hundred problems are worked out in detail, to give the student experience in the technique of calculation as applied to physical chemistry.

—Dr. John A. Steffens, F.A.I.C.

Aquametry

By John Mitchell, Jr., M.S., and Donald Milton Smith, Ph.D. Monograph No. V Interscience Publishers, 444*pp.* $8.00.

This is Volume V in a series of monographs on analytical chemistry and its applications. The present work deals with the application of the Karl Fischer reagent in quantitative determination of water, a phase of analytical chemistry for which the authors have coined the term "Aquametry."

All procedures based on this reagent have been discussed in detail, and while this reviewer has not had any occasion to test the methods which are offered, it is stated by the authors that little difficulty will be encountered in reproducing the work described, provided the instructions are followed exactly.

This book should without a doubt prove to be a valuable addition to the library of the analytical chemist.

—William H. Van Delden, F.A.I.C.

Chemical Books Abroad

Rudolph Seiden, F.A.I.C.

Here are a variety of German and English books which should be briefly called to the attention of American chemists:

(1) *Louis Pasteur, Sein Leben und Werk.* By Rene Vallery-Radot. Published by Schwarzwald Verlag, Freudenstadt. 1948. 728 pp. (DM 14.) This is a translation of the well-known French biography, La Vie de Pasteur, originally published in 1900. The capable translators are Max Hedinger and Schneider. Pasteurization, rabies vaccination, antiseptics and aseptsis are a few of the advancements to which Pasteur generously contributed.

(2) *Aids to Physical Chemistry.* By R. G. Austin. Published by Bailliere, Tindall & Cox, London. Second edition, 1948. 443 pp., 61 illustrations. (Price not stated.) An up-to-date review of physical chemistry, with a minimum of mathematics; written for advanced students in chemistry and related sciences, yet easily understandable for anyone interested in this fundamental subject.

(3) *Die Festigkeitserscheinungen der Kristalle.* By H. Tertsch. Published by Springer Verlag, Vienna. 1949. 310 pp. 219 illustrations. (S 96. or $9.60) Prof. Tertsch deals with the problems of tenacity of crystals, particularly with relationship between physical-mechanical and crystallographic - structural phenomena. This is the first compilation of the theories of a relatively new branch of science which later may become of practical value to technical physicists. 317 references, mostly to German and prewar publications.

Booklets

"Model U-4 Sonic Generator." Information may be obtained from Ultrasonic Corporation, 61 Rogers Street, Cambridge 42, Mass.

"Experience, Loyalty, Skill." Report of a campaign to stimulate job opportunities for middle-aged and older workers. Federation Employment Service. 67 West 47th Street, New York 19, N. Y.

"Veegum, Emulsifier, Thickener, and Suspending Agent." 42-page booklet, available from R. T. Vanderbilt Company, Specialties Department, 230 Park Avenue, New York 17, N. Y.

Food Research Laboratories, Inc., 48-14 Thirty-third Street, Long Island City 1, N.Y., announce that reprints of a review by Dr. Bernard L. Oser, F.A.I.C., on "Recent Developments in Food Analysis," which appeared in the February, 1949, issue of *Analytical Chemistry,* are available on request while the supply lasts.

"Chemical Process to Eliminate Stream Pollution and Recover Byproducts from Spent Steel Pickle Liquor and Zinc Wastes." Information may be obtained from William J. Nolan, Maneely Chemical Company, Philadelphia 7, Penna.

Condensates

Ed. F. Degering, F.A.I.C.

Armour Research Foundation

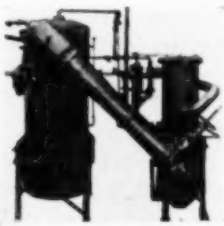
"You sit at this table, Miss Jones," the foreman of a large local factory instructed a girl who was starting a job as instrument-tester. "Put those audiphones over your ears. Turn this rheostat handle until you hear a distinct oscillation. Then, place the amplifier diaphragm over these five points on the piece you are testing. If the oscillations are interrupted, the piece is to be rejected."

The girl looked blank. "I don't get it, Boss, you'll have to come again."

The foreman had a modern daughter himself. He changed his style. "Well, honey, here's the dope. You put these doohickies over your ears and turn this gimmick till you're on the beam. Then you put this gadget over these thingamajigs. If the noise runs off the groove, the job is not solid. Now are you hep?" This time she was.

—*Weekly Roar,*

NOW is the TIME to consider next summer's



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